

Beggar by choice? Ending Ethiopia's food insecurity

Woldeyesus Sinebo, Ethiopian Institute of Agricultural Research, P.O. Box 2003, Addis Ababa,

Ethiopia; e-mail: wsinebo@hotmail.com

Sustainable hunger reduction in Ethiopia remains a prime challenge for global community engaged in Africa's development (1-5). On average, 8.3 million Ethiopians go hungry requiring permanent assistance (6). To enhance food security, Ethiopia's current five-year poverty reduction strategy paper (PASDEP) envisages raising cereal yields from 1.4 tons per hectare in 2005 to 3.5 tons per hectare in 2009 from an area of about 9.2 million hectares (6). With only one crop growing season remaining to the end of the five-year plan period, cereal yield was forecasted at only 1.63 tons per hectare in 2008 (7).

Ethiopia's ambitious plan to radically increase cereal productivity was inspired by success with the Green Revolution crop varieties in Asia. Unlike the Asian case, however, Ethiopia has not had large cereal land area under improved soil fertility and water management to trigger yield increase on the scale envisaged in PASDEP. Food insecurity in Ethiopia will, therefore, persist until the country is able to discover its own distinctive roadmap to a sustainable green revolution.

Designing Ethiopia's version of the Green Revolution requires a blend of experiences from the late 18th /early19th century potato revolution in Europe (8-11), 20th century cereal-based Green Revolution in Asia and recent cassava revolution in parts of sub-Saharan Africa (12-14). Ethiopia can derive vital lessons by revisiting the historical path out of food insecurity in low-yield grain farming of Western Europe only two centuries ago. Many European countries transitioned from food insecurity to plenty through the adoption of potato that was then considered unfit for human consumption (8-11). Potatoes' potential as a food security crop in these societies was first recognized by the upper class that intentionally promoted the crop in Europe (8-9). Recently, following in the footsteps of Europe, populous countries such as China and India in Asia and Egypt in



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Africa have dramatically expanded potato production (9, 11). Ethiopia has the greatest potential for potato production in Africa with most of its arable land suitable for the crop (9). However, in Ethiopia, potato remains a minor crop resorted to when cereals fail. As a result, only about 50 thousand hectares are cultivated to potato (7), much lower than in other African countries (9). In Ethiopia, potato can fit as a double crop during the short spring rains (March – May), which is often used for land preparation, complementing rather than replacing summer season grain crops.

Ethiopia's second lesson should derive from recent cassava revolution in a number of African countries, notably Nigeria (12-14). Cassava has become the vanguard of food security and economic development in many sub-Saharan African countries (12). Cassava outshines other crops where rainfall is uncertain, dry periods are long, and soils are acidic and low in plant nutrients (15), all of which are typical features of Ethiopian agriculture. Under low input conditions, cassava yields a grain equivalent of 3.5 tons per hectare (15). In comparison, Ethiopia's low input cereals produce only about 1 ton per hectare. In Ethiopia, cassava is a very minor crop grown as a hedge around homestead in a few localities in southern parts of the country. The starchy roots are consumed either cooked directly or made into flour that could be mixed with grain flour to prepare a range of foods including injera – sour flat bread preferably made of tiny-grained cereal called tef (*Eragrostis tef* L.) (16). With the food price hike over the last three years, the crop is gaining ground in some towns of southern Ethiopia. Nonetheless, cassava is almost unknown to Ethiopians in big consumption centers such as Addis Ababa. Consequently, diversification of food crop production into these “odd roots” to enhance food security and relieve the country of a hunger nation identity was not possible.

Ethiopia is a land of contrasts comprising of mosaic of peoples, cultures, crops and agro-ecologies. Ethiopia's problem of food insecurity transcends the often-cited overplayed periodic drought and resultant crop failure. Ethiopia's bottomless dependence on food aid is in part sustained by a focus on cereal-based agriculture induced and maintained by food habits of historical elites (17-18) and relative neglect of investment in highly productive and resilient food security crops such as enset (19-21), cassava, potatoes, and

sweet potatoes. Ethiopia is a melting pot of plough based cereal agriculture arguably introduced by Semites to northern Ethiopia (17) and root crop based sub-Saharan African agriculture of southern Ethiopia. A peculiar issue in comprehending the problem of food insecurity and agricultural sustainability in Ethiopia is broadly this north-south divide in the culture of agriculture and food habits and the role political governance played in determining winning and losing food cultures. Historically political leadership in Ethiopia has come from the north (17-18). Presumably, this helped grain crops and grain-based injera to merit favor nationally while high potential root and tuber crops were neglected and their consumption less regarded (21). Regardless of being brought up in other food cultures, injera has become the staple food of the urbanites, the educated or business elites. For instance, in southern Ethiopia, both the agro-ecology and food habits of the indigenes invite the production and consumption of panoply of food crops particularly roots and tubers. Nevertheless, mainly tef injera is consumed in towns and cities including by the natives. One hypothesis why the emerging elites from root crop-based communities revert to injera is the lingering high social status enjoyed by the injera eating culture.

Ethiopia's flagship food security outlay termed Productive Safety Net (PSN) (6) fosters an elaborate welfare system supported in large part by international humanitarian aid. Under the cover of PSN, however, the resilience of Ethiopian agriculture has weakened and the vulnerability of agriculture-dependent livelihoods has increased. Rapid population growth in Ethiopian highlands has disrupted the traditional fallow-rotation based benign agriculture and has led to continuous low input cereal-based farming. The outcomes are dreadful soil erosion, deforestation, and loss of biodiversity. Agriculture, environment, peace and social cohesion can be salvaged and sustained only when at least food energy needs of a growing population is met. As things stand, it appears impossible to attain food security with a focus on grain crops only.

Ethiopia spent US \$250 million for wheat import in 18 months since September 2007 (22) and appealed for food aid worth US \$389.3 million for the year 2009 (23). With R&D investment of a fraction of annual food aid on root crops and a slight shift in food

habits, the meager foreign exchange is saved, hunger and dependence on food aid curtailed, jobs and income opportunities created, and cheap food for people engaged in other trades provided. Evidently, Ethiopia is eager to get rid of its hunger nation image and restore its prestige. Doing so within Ethiopia's wherewithal requires a paradigm shift – a shift from a culture that glorifies the consumption of grain foods, notably tef injera, to the one that also fosters the development and use of roots and tubers.

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